

THE CHEMIST

September, 1953

VOLUME XXX



NUMBER 9



DR. HERMAN F. MARK

*Receives New York AIC Chapter Honor Scroll
(See page 415)*

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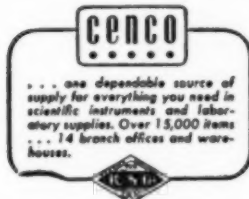
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TO COME

The October CHEMIST will continue the splendid series on Public Relations for Chemists and the Annual Meeting series of articles that show fields of opportunity to chemists and chemical engineers.

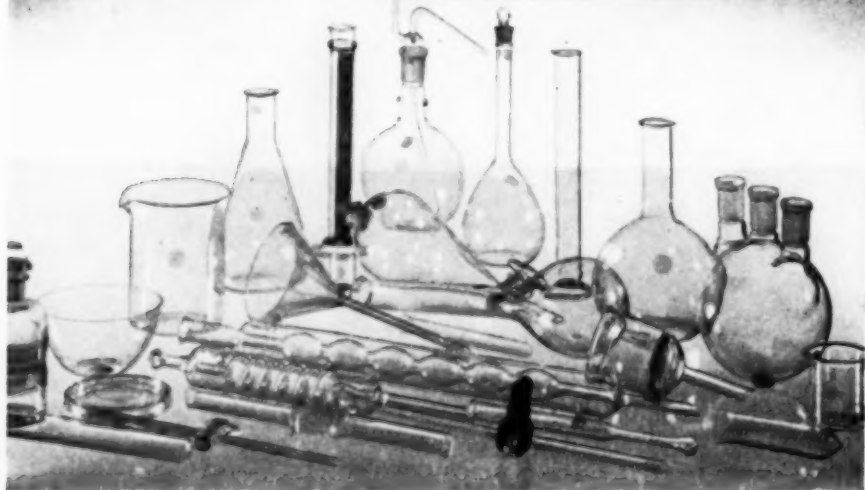
The November CHEMIST will contain career and manpower information that deserves the careful attention of chemists, inexperienced or experienced. It reveals trends, opportunities, current thinking based intelligently on the past history of the professions, and worthwhile suggestions to further careers.

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Report on Pension Plan for Self-Employed Chemists (Continued)

HEARINGS will probably be held in October on the Jennings-Keogh Bills, HR 10-11, "a bill to encourage the establishment of voluntary pension plans by individuals."

President Work will submit a written memorandum along the following lines in support of the bill:

"The American Institute of Chemists has about 2600 members distributed throughout the United States. It is now constituted of the following Chapters, New York, New Jersey, Pennsylvania, Baltimore, Washington, D.C., New England, Alabama, Chicago, Ohio, Niagara, Louisiana, and Los Angeles. It is the professional organization serving the chemists and chemical engineers in industry and in the universities of this country. Its members are employed by every important chemical company in the United States. Many of its members are in the profession of teaching chemistry and chemical engineering in the colleges and universities and many are self-employed chiefly as chemical consultants, chemists and chemical engineers.

"The majority of the members are employed by corporations who have retirement plans. The membership, however, also includes several hundred who are self-employed or work for concerns that do not have retirement plans. These members are at a distinct disadvantage. The members employed by concerns having retirement plans in effect receive partial compensation for their services in the form of retirement income. Contributions made by their employers to pro-

vide such retirement income is tax exempt. The minority, however, do not get the same tax benefits.

"As a practical matter it is today exceedingly difficult, if not impossible, for chemists and chemical engineers to save enough to provide adequate retirement benefits. This tends to reduce the efficiency of those not having retirement benefits because of worry over problems of old age and infirmity. The Institute believes the establishment of a retirement plan as provided for in the Jenkins-Keogh Bills would eliminate such worry and hence would be a tremendous lift from the standpoint of the peace of mind with consequent improved productivity of the members who avail themselves of these retirement benefits.

"The Institute approves in substance the Jenkins and Keogh Bills H.R. 10 and H.R. 11 for the above reasons."

In addition, a personal letter will be written to members of the Ways and Means Committee along the lines of the memorandum.

Benjamin Sweedler, F.A.I.C., chairman of the AIC Committee on this subject, suggests that those members of the INSTITUTE who have personal contacts with the members of the Ways and Means Committee advise them of our support of the principles of these bills.

(Note: A more detailed report on the content of these bills appears in the July, 1953, issue of *THE CHEMIST*.)



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Trends in European Research

Dr. Herman F. Mark, F.A.I.C.

*Director, Polymer Research Institute, Polytechnic Institute of Brooklyn,
99 Livingston Street, Brooklyn, N. Y.*

(An abstract of the remarks of the author when he was awarded the Honor Scroll of the New York AIC Chapter, May 21st, in New York, N. Y.)

IMMEDIATELY after the war, fundamental research in Western Europe was at a low level; it has astonishingly recovered during the past few years and is now at many places stronger than it ever was before.

Government institutions, universities, and industrial research organizations share in the building and maintenance of laboratories and libraries, in the issuing of publications and in the arranging of scientific and technical conferences. The number of scientific books, review articles and original contributions published in 1952 considerably exceeds that of 1938 and 1939.

Most laboratories are well-equipped for the work they are doing; many modern American instruments and test machines having been procured with the aid of the Marshall Plan. Only at the level of very expensive and complicated equipment such as cyclotrons, synchrotrons, high speed computers, precision mass spectographs, equilibrium ultracentrifuges and high resolving electron microscopes is there any noticeable inferiority of the leading European lab-

oratories as compared with their American counterparts.

Most laboratories are well staffed; the leading men usually being scientists and technologists of world-wide reputation, who concentrate on the direction and supervision of the work itself and they are but little distracted by problems of essentially managerial and administrative nature. In this respect they are better off than many laboratory directors in this country. There seems to be a large supply of intelligent, dependable and hard working young scientists in the age range between twenty and thirty. They do not get married as soon as their colleagues in this country and are, therefore, not quite as much charged with financial responsibilities. As a consequence, they are ready, and indeed many of them prefer, to be faced with comparatively fundamental problems, which require considerable concentration and do not hold out the probability of a rapid solution. Patience, imagination and sober self-criticism is often found in young scientists to an unusual and gratifying degree.



*Karl M. Herstein, Chairman, New York AIC Chapter, Dr. Mark,
Dr. R. E. Kirk, and Dr. Emil Ott.*

The areas of particularly intensive activity are: Research in the domain of biocatalysts (enzymes, sterones) and antibiotics with emphasis on the mechanism of their action. New types of syntheses in organic chemistry, including the use of high pressures and high temperatures and the application of new types of catalysts. It seems that various kinds of complex cyanamides and hydrides are capable of accelerating many important organic reactions. Research on the solid state (crystalline and amorphous), with special emphasis on systems containing unstable or metastable configurations leading to the phenomena of heterogeneous catalysts, infrared fluorescence, and resin conductivity. Research on new types of macromolecules with emphasis on water soluble and surface active polyelectrolytes including block and graft copolymers.

Elected: Vice president and technical director of the Sprague Electric Co., North Adams, Mass., Dr. Wilbur A. Lazier, F.A.I.C. He was formerly at Du Pont Experimental Station; was the first director of the Southern Research Institute of Birmingham, Alabama; and from 1948 to 1953 was director of chemical research and development of Chas. Pfizer & Co., Brooklyn, N. Y. He has published numerous scientific papers and has been awarded over one-hundred U. S. patents. He received a Modern Pioneer Award in 1940 and the Herty Medal in 1946.

Annual Meeting: To be held by the Chemical Specialties Manufacturers Association, 110 East 42nd St., New York 17, N. Y., at the Mayflower Hotel, Washington, D. C., Dec. 6-8, 1953.

Herman Mark—What Are His Marks?

Dr. Emil Ott, F.A.I.C.

Director of Research, Hercules Powder Company, Wilmington, Delaware

(Presented when the Honor Scroll of the New York AIC Chapter was awarded to Dr. Mark, May 21, 1953, in New York, N. Y.)

SCHOOL grades? Skin blemishes?

German money? None of these! His marks include a warm smile, a bow tie, his athletic prowess, family and home, intellectual powers and world-wide-recognized scientific achievements, travel activities, lavish generosity of self and knowledge, and many honors.

Trade Marks

If we selected as identifying *marks* just the warm smile and the bow tie, Herman Mark might appear to be a nice old fuddy-duddy. Nothing could be more misleading; parts of his life-history read like a swash-buckling story of some carefree, gay adventurer!

Birthplace Mark

His birthplace mark is suffused with more than ordinary romance. Some of his contemporaries (he was born in 1895) have had to overcome the handicap of first seeing life somewhere hidden from the main roads of cultural flow. He, however, was born in Vienna, Austria, in an era of great culture and among a people who cherished that culture. The son of a successful physician, Herman had a happy, normal boyhood.

Athletic Marks

On your mark! Get set! Go! To this the young Herman would have been up and away because his blood tingled to the challenge of competitive sports. Proficiency in soccer gained him a place in the Austrian National Soccer League at seventeen. Skiing is a sport he has never abandoned — and never a Sitzmark! Mountain climbing has been a continuous activity. His tennis skill, exhibited annually at the Gordon Research Conferences, and his swimming ability are notable athletic *marks*. Keeping on the mark physically was a decided asset in a minor train collision. The jolt which knocked several out of their seats and felled others left Mark, who was coming down the aisle, quite undisturbed. He simply did a handspring and landed on his feet again.

Military Marks

Ski trails, one in Europe and one in this Continent, led to two *marks* achieved in military activity. In 1914, at the start of World War I, Herman was drawn into an Austro-Hungarian mountain regiment. Studying the movements of troops and supplies

over snowy terrains was substituted for the chemistry books and laboratory experiments left behind at the University of Vienna. He went into uniform a private and emerged a captain, after service on the Russian and Italian fronts and a year in an Italian prison camp. During his confinement he studied French, English, and Italian. When the Armistice was near, he chanced to procure a British officer's uniform. With this he escaped, boarded a train going north and closed himself in a compartment. After two days of travel without food (Mark has a splendid appetite!) he ventured to the dining car in midmorning and found it empty. But midway in his meal a British officer entered the car and immediately joined him. Seeing no alternative, and without confidence in his recently acquired English, Mark offered himself up. The British officer said without hesitation, "Don't be silly, old chap. I would have done the same had I been in your boots. Sit back down and we'll have another bottle of wine!"

Herman's combined love of skiing and knowledge of science made him a *marked* asset to World War II. He actually was tapped for this military assignment — to aid in the development of the U.S. Army's "weasel" or snowmobile tank, because he was considered an "expert on ice." It took only one article by

him to establish this reputation! In an obscure journal, a conscientious British librarian came across his account of an excursion with Eucken to the Alps and the Caucasus Mountains to study the heavy water content of glaciers. Only an authority could have been the author. London tipped off America. Mark, who at that time (1942) was in Brooklyn, classed as an enemy alien (in 1944 he became an American citizen), immediately made the U.S. "weasel" team. Fortunately, he turned out to be truly an "expert on snow." His military experience was no liability nor was his ability to apply laboratory techniques to measuring the shearing strength, density, and compressibility of snow under every climatic condition.

This weasel story really began when Churchill removed his cigar long enough to say that Americans can do anything, and would they build in 180-days a secret weapon for a projected invasion of Norway. It was so important that it got top priority, had engineers and scientists working around the clock, and almost fractured British-American relations. Herman unwittingly caused some of the sleeplessness of American military men. They had to devote hours to persuading immigration authorities at the Canadian border to let their enemy-alien snowman pass at each crossing — Herman was the

team's indispensable textbook for their secret project.

Ever an enthusiastic opportunist, he with Turner Alfrey took advantage of unavoidable delays on test expeditions to ski and mountain climb, especially in the Canadian Rockies. On one such holiday they took two cans of dehydrated food from the commissary. Later, around a cozy fire, the first taste of their heated tomato soup was startlingly strong. Several volumes of snow were added several times; more heating; more tasting. The last mouthfuls still seemed fairly strong. As scientists, they then investigated. They should have used shovelfuls of snow as the diluent — the label read, "This can contains the concentrate of three bushels of ripe tomatoes!"

Family and Home Marks

"The woman is the show window of a combine" is a saying of ancient origin. Its truth was never better exemplified than by Herman's wife, Mimi (born Mary Schramek), who became Mrs. Mark in 1922. She is a charming, typical Viennese, a superb cook who specializes in some of her native dishes, an understanding wife and mother, a delightful and vivacious hostess. Her gaiety and joy in living are contagious. Naturally, she is a singing Viennese. She satisfies another part of her artistic urge by portrait painting from photographs.

The Mark boys, Hans born in

1929 and Peter born in 1931, have strayed from their father's field of chemistry but not from science. They are physicists. Peter, with an undergraduate degree from Harvard will pursue graduate study at Yale. Hans took his undergraduate degree at the University of California in Berkeley, and now is teaching, doing nuclear research, and working for the Ph.D. at Massachusetts Institute of Technology. He has also recently acquired wife Marion.

Every household should have a pet. The Marks do — Pussy, the tabby cat. Home to Mimi and Herman is one continuous international adventure. To their guests, the warm welcome and genuine hospitality are never - to - be - forgotten experiences. The Mark's doors to their apartment in Brooklyn and to their house at Lake Peekskill, N.Y., are always wide open. A second house is now a-building in Peekskill to accommodate the "Geheimrat", his family, and many friends concurrently. Here a completely informal, non-Geheimrat, atmosphere prevails. The host's attire even in the coldest spring is always short beach pajamas. All sports-minded guests are soon drawn into competitive swimming or tennis feats. There is a frequent sprint around the lake, with Mark *making marks* seldom matched by the visitors. Scientific and personal problems are resolved; needed encouragement and stimulation to attain satisfying

goals are freely given; much pure relaxation is enjoyed amid so conducive and gracious an atmosphere.

Professional Mark

There comes a time in the life of outstanding scientists when, quite suddenly, they are well-known. In the case of Herman Mark, this time occurred about a quarter of a century ago. By 1928 Mark was a recognized authority on x-ray analysis. In addition to his book, "X-rays in Chemistry and Technology," he had published many papers. Note the names of some of his collaborators: Polanyi, Weissenberg, Szilard. More significant were the authorities in other fields, such as Hauser, Katz, and Herzog, who were able to enlist the aid of Mark. Anyone with a problem in structure determination went to Mark.

Particularly the problems in the high-polymer field impressed him. After taking the Ph.D. *summa cum laude* in 1921 (his thesis was on pentaphenylethyl, a free radical of the Gomberg type), he followed Schlenk to Berlin. As assistant to his former professor, Mark first came into contact with the polymeric substances which were to occupy the greatest portion of his career. After a year with Schlenk, he joined Herzog at the Kaiser Wilhelm Institut fuer Faserstoff-Chemie, and became familiar with cellulose problems. During 1922-26, his main interests were natural fibers, elucidation of

crystal structure by x-ray investigation, and high-tenacity rayon. He was attracted in 1927 to the I.G. Laboratories at Ludwigshafen, where polymer problems were beginning to receive consideration.

By then the young chemist, so much in evidence at scientific meetings in those wonderful European years after inflation and before depression, was no longer almost an organic chemist working on stable free radicals, or an x-ray expert, or a cellulose chemist. He was an expert in all fields. At the I.G. Laboratories, where he became a group leader in 1928 and assistant research director in 1930, there was much polymer work. Styrene was prepared by the dehydrogenation of ethylbenzene and polymerized in a continuous unit. Fikentscher was already working on emulsion polymerization, but still studying the viscosity of nitrocellulose in a classic piece of work. The acetylation of cellulose was investigated. X-ray studies were continued. Pioneer work was done with electron diffraction. A new departure was the outstanding work on catalysis. The dehydrogenation of ethylbenzene and the desulfurization of benzene and oils with sulfur-resisting catalysts were developed. Methane was oxidized to formaldehyde. Methanol was reacted with carbon dioxide to give acetic acid. These many lines of endeavor were coupled with fundamental work of the highest quality.

The active spots on catalysts were followed by adsorption of gases. The nature of rubber-like elasticity was studied by x-ray methods and by thermodynamics.

What were the qualities of the man which enabled this variety of work to be pursued so successfully? Mark was fortunate in that K. H. Meyer was the director of the laboratory; in fact, in the polymer field, Meyer and Mark were for a while considered as a single entity. Mark was outstanding in the rapidity of his perception of a new point; in his ability to marshall pertinent facts from other fields and to organize a complete picture, and finally to present this picture to directors of the I.G., fellow-workers from other plants, or a scientific meeting, so that the new theory could be grasped immediately. Something else was also involved. Mark, with his warmth of personality, his approachability, and his readiness to do a favor, was a great change from the "Hochwuerdigkeit" and "Stolz" of many of the great scientists of the old school.

With all Mark's inventiveness and fertility of ideas, he could not escape *missing the mark* occasionally. There was the case of the nature of polymer solutions. Mark had established the presence of organized structures in cellulose fibers. He was inclined to think that these structures or micelles maintained their identity in solution. This viewpoint was attacked ener-

getically and rightly by Staudinger. The resulting polemics are an interesting chapter in the story of polymer chemistry. Mark soon modified his views to bring them into agreement with the whole body of evidence. He has given Staudinger generous credit for his contributions.

This first great period of Mark's professional life was brought to a close by the shadow of oncoming political events. Mark left Ludwigschafen in 1932 with a great reputation and entered the second phase of his career as professor and director of the First Chemical Institute at the University of Vienna. Here he made a decision. Out of all his interests he selected polymer chemistry as the most fruitful for fundamental investigations. He assembled an excellent group. Work on x-rays continued, but more significant was the work initiated in the newly developed field of free-radical polymerization. Thermodynamic and kinetic reasoning was applied to the previously empirical field. Significant contributions were made to the theory of rubber-like elasticity.

Mark's mode of thinking was becoming more alien to the trend of European thought but more similar to that of the American school of high-polymer research. The invading Nazis in 1938 caused Mark's dismissal from his University post and also from the Vienna Board of Education. These events led Mark to this

Continent and a position revolving around his old love, cellulose. From 1938 to 1940 he was research manager of the Canadian International Paper Company, Hawkesbury, Ontario, Canada, a post formerly held by Dr. Emil Heuser.

An inherent urge to teach and his interest in all high polymers combined to initiate the next great period. An opportunity materialized in 1940, in an adjunct professorship in organic chemistry at the Polytechnic Institute of Brooklyn. This phase started in a closet-sized room, to which Mark's reaction was: "I'll do first the things I can do with little rooms." And in such rooms he and his earlier co-workers, Goldfinger, Fankuchen, Stern, Hohenstein, Alfrey, Doty, and Zimm, studied the structure of macromolecules and their behavior in solutions. This small beginning initiated a chain reaction which, with Mark as catalyst, led to the establishment in 1946 of the Polymer Research Institute. As head of that Institute, Mark now catalyzes the scientific pursuits of a large number of graduate students and research workers, from all over the world. The many small laboratories are spread over three floors of a separate building. The properties of polymers in solution are still being studied. Other major fields are polymerization kinetics, copolymers, catalysts, molecular weight and shape, autoxidation, and reaction mechanism.

The work of this Institute has a profound influence on research and applications of high polymeric molecules.

How has Mark been able to attract the brilliant collaborators who have come to his Institute. The answer: This is the same man who made his *mark* earlier at Ludwigshafen. His immediate grasp of a new development, his rapidity of assimilation to old knowledge, and his ability to expound the resulting picture to varied types of audience are still a worthy measure of his intellectual powers. But without his warm personality, his strong interest in the personal as well as in the technical problems of students and colleagues, and his extreme generosity with his talents and time, he could not have succeeded as he has. He is in truth brilliant. This was demonstrated at Liege, in 1930, when he gave an outstanding review paper in his native German, repeated it in English, gave a summary in French, and then answered questions in Italian. It was to avoid boredom in prison, you may remember, that he learned languages!

Now, he prefers to give his ideas to others so that they may develop their own more fully; to give of himself by carrying a great load of committee and educational work, and to see that others get full credit. At the start of his career, he wrote the books from which we learned polymer chemistry. In recent years, au-

thors and editors, to our advantage, have successfully persuaded him to contribute chapters to the books of others. Somehow he has contributed nearly five-hundred original and review articles to American, Austrian, Belgian, British, French, German, Italian, Spanish, and Swiss journals. He sees that the publications of high-polymer investigators receive expert attention and adequate outlets. For example, the valuable "High Polymer Series" of Interscience Publishers was initiated by Mark while he was in Canada, and he with Paul M. Doty, R. M. Fuoss, and W. T. Astbury make up the current editorial board of the *Journal of Polymer Science*. He also devotes an enormous amount of his energy and talents to organizing polymer conferences for the Polytechnic Institute of Brooklyn, the American Chemical Society, and the Gordon Research Conferences. A *pre-eminent mark* of Herman Mark is the fact that he is the great unifying force in the polymer field.

Honor Marks

In Herman Mark's case, *honor marks* reveal the versatility of the man. He is honorary Doctor of Engineering at the University of Liege, Belgium, and most recently received an Honorary Doctorate from the University of Uppsala, Sweden. He is an honorary member of the Indian Academy of Sciences, New Delhi; of the Chemisch-Physikalische Gesell-

schaft, Vienna; of the Society for Wood Chemistry, of the Austrian Institute of Chemists; member of the Academies of Science in New York, Amsterdam, Vienna, and Madrid; and a member of the Royal Institution, London. He is a foreign member of the Max Planck Society in Goettingen; honorary president of the American Society of European Chemists; chairman of the Wood Chemistry Committee of the Food and Agricultural Organization in the United Nations (his interest developed during the thirties when he was president of the Committee on Wood Utilization in the Austrian Department of Commerce); chairman of the Commission on Macromolecules in the U.S. National Research Council and in the Union Internationale de Chimie; ex-chairman of the Management Committee of the Gordon Research Conferences; member of the American Chemical Society (he served on many committees and as an official in several Divisions and Sections); fellow of THE AMERICAN INSTITUTE OF CHEMISTS; fellow of the American Physical Society; member of the American Association for the Advancement of Science, and of the American Society for X-ray and Electron Diffraction; fellow of the Textile Institute, Great Britain, and of the Faraday Society.

In 1928 he received the Heinrich Hertz Medal of the Gesellschaft Deutscher Naturforscher; in 1934

the Wilhelm Exner Medal of the Industrial Association of Vienna; in 1948 the Francqui Medal of the University in Liege, and he has just been made Chevalier of the French Legion of Honor.

During World War II he was technical consultant of the Office of Scientific Research and Development, working on the "Weasel" (snow) and "Ducq" (amphibious tank) projects. In April 1949, he was appointed as U.S. Representative on the Council of the International Union of Pure and Applied Chemistry in Amsterdam, and is an alternate representative for the 1953 Stockholm meeting. Since 1950 he has been technical consultant of the U.S. Navy, the Quartermaster Corps, and the National Science Foundation.

Land and Water Marks

Over land and water, by public or private transportation, our honor man *marks up* 60,000 to 70,000 miles a year. This "Roving Professor" spends many nights in trains; is able to take off at a moment's notice to India or Sweden. He travels light, usually accompanied by one Dacron shirt and a small bag that contains as one of the essentials a lady's folding umbrella — he does not own a raincoat! On the train, in a plane, or station waiting room, he is able to work and write under any conditions. Mark, who chooses a seat in the rear of a car, does his share of talking with fellow travelers while

busily writing out in longhand some correspondence, a talk, an article for one of the journals. This material he feeds back continually to his two secretaries for transcription. Only his unique ability to work as he rides explains his terrific output and extraordinary mileage.

While traveling, Mark has opportunities to keep up with his languages. Once in Europe after the war, he chose French to converse with a fellow in the same compartment. Shortly the man said, "I see your native tongue is not French. Shall we talk in Italian?" So they did. After a while the man said, "Ah! I see your mother tongue is not Italian either. Let's speak in German!" And they did. Finally, the fellow's puzzlement could be no longer unsatisfied. "I give up," he said, "a fellow would speak European languages like you do only if he lives in Brooklyn like I do. Where do you come from?" It is amazing how rapidly Brooklyn *made its mark* on Mark.

Humane Mark

"The 'Geheimrat' cares and will help." This statement, paraphrasing the sentiment of many a student and colleague of Herman Mark's, has directed an endless stream of struggling and discouraged men of science newly out of postwar Europe through the Geheimrat's door to an understanding friend. Mark's extreme generosity with time and money to

these persons has instilled courage, has given opportunity, and has brought happiness. Many have contributed or show promise of contributing to our scientific progress.

Mark's encouragement and over-generous assistance have also extended to many men of science who remained in postwar Europe. At the International ACS meeting in New York in 1951, a few of these grateful men had the pleasure of being welcomed by that one-man hospital-ity committee, their true friend and benefactor. A new place for scientists to work abroad has also been his serious concern. He has been chairman of the Planning Committee of the Weizmann Institute of Science, dedicated in 1947 at Rehovoth, Israel, and has put much effort into organizing it and to giving it his continuous attention.

Are His Marks Valid?

To be worthy of measurement for marks in the eyes of our fellowmen,

one must have given more than one has gained. By this yardstick, our honor man amply measures *up to the mark*. Herman Mark is, indeed, a re-MARK-able man!

Source Material

"Herman F. Mark", *Chem. Eng. News*, 26, 3263 (Nov. 1, 1948).

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"Project Weasel", by M. Silverman, *Saturday Evening Post*, 218, pp. 12,13, 46-48,50 (Feb. 9, 1946).

"Brooklyn Poly Marks Century with Biggest Engineer Total", *Newsweek*, 64-66 (Mar. 16, 1953).

Mimeographed biographical material and list of publications from Dr. Mark's secretary.

Dr. E. S. Proskauer, Dr. Paul M. Doty, Dr. H. M. Spurlin, and others.

Pictures from Mrs. Mark and Dr. Proskauer.

Webster's dictionary for definitions of the word "mark".

Text of citation from Karl M. Herstein.

Conventional information from "Chemical Who's Who" and "American Men of Science."

Presentation

THE 1953 Honor Scroll of the New York Chapter of THE AMERICAN INSTITUTE OF CHEMISTS was presented to Dr. Herman Mark, F.A.I.C., head of the Division of Polymer Chemistry, Polytechnic Institute of Brooklyn, Brooklyn, N. Y., at a dinner meeting held at the Commodore Hotel, New York, N. Y., on May 21st. Karl M. Herstein, chair-

man of the Chapter, and president of Herstein Laboratories, presided. About two-hundred persons attended the dinner and the preceding reception that was given for Dr. Mark by E. I. duPont de Nemours & Company.

Dr. Emil Ott, F.A.I.C., spoke on "Herman Mark — What Are His Marks," illustrating his talk with

slides made from pictures in Dr. Mark's family album. Dr. Raymond E. Kirk, F.A.I.C., presented the Honor Scroll. Dr. Mark responded with a summary of the current trends in European research.

The citation to Dr. Mark reads:

As scholar and humanitarian, teacher and expositor, scientist and researcher, you have given lavishly to young and old throughout the world. Beloved by students and colleagues, your adopted country proudly acclaims you for the distinction you have brought.

Observation: "After much occasion to consider the folly and mischiefs of a state of warfare, and the little or no advantage obtained even by those nations who have conducted it with the most success, I have been apt to think that there has never been, nor ever will be any such thing as a good war or a bad peace."

—BENJAMIN FRANKLIN

From *The Institute News*

Prosperity: It will continue, according to Dr. Leland I. Doan, president of The Dow Chemical Company, and there will be no major business setback due to reduction in defense spending resulting from the cessation of the Korean conflict. "Rather," he said, "I believe that any reduction in defense spending is

going to provide the best possible opportunity for industry to generate, within itself, many uses for our already enormous and steadily increasing productive capacity." Private industry's big job for years to come is to prove to itself and to the world that it can continue to raise living standards in the United States. He cited the population growth and the "dramatic increase in personal income" over the past several years as important factors in extending the country's present prosperity.

New Officers: Of the Chemical Institute of Canada for 1953-54: President, Dr. J. W. T. Spinks, University of Saskatchewan; vice president, E. R. Rowzee, Polymer Corporation Limited; chairman of the board, Ludvig Firing, Canada Titanium Pigments, Ltd.; treasurer, T. H. G. Michael, Howards & Sons (Canada) Ltd.; general manager and secretary, Dr. Garnet T. Page, 18 Rideau St., Ottawa, Ont. The 1954 Annual Conference will be held in Toronto, Ont., June 21-24, 1954.

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The Chemist and His Industry

Dr. George F. Rugar, F.A.I.C.

Technical Service Division, Diamond Alkali Company, Cleveland 14, Ohio

(Presented at the Symposium on Public Relations for Chemists, held jointly by The American Chemical Society and the AIC in New York, N. Y.)

THE chemical industry is big business. According to the U. S. Department of Commerce, in 1951 the total value of the products classed as chemicals and allied products was about \$18,500,000,000. The largest company showed sales of about \$1,500,000,000; the second largest about \$927,500,000, and the third about \$861,000,000. These figures compare favorably with the leaders of any other U. S. industry. There were about 10,500 companies employing 535,000 people. It is estimated that about 130,000 of these were chemists. Some of the more important considerations that have to do with the public relations of these chemists to the industry are: What is the chemist doing in industry? How well is he doing it? What should he be doing?

First look at some chemists, who, judged by commonly accepted standards, are doing very well. A list of names of chemists who are heads of companies, of others who are successes in the consulting field, or of still others who occupy other prominent positions in the management of the industry, indicates that they be-

How the chemist in his everyday life can do much to create and maintain favorable public relations for the chemical industry.

long in the class of men once characterized by Herbert Hoover as "uncommon" men in contrast to those in the other classification and known as the common man. They comprise that small group of chemists who have done many times over what might be expected of the common chemist. It is because of them that we enjoy many of the comforts we have today. Because of them, too, the chemist has advanced far toward the goal of being rated as a professional man.

The hard-headed businessmen who make up the boards of directors of these companies select for the top echelon only men who they believe have the qualities of leadership and business acumen that will insure continued success in their business. Why would a chemist be chosen? Simply because as a chemist he has performed as a true professional man does; he has given his all in his assignments, and in addition has shown the human

qualities, the leadership traits, and the initiative which business demands.

Some of the characteristics of these chemists who have risen to the top follow. This is intended to be a composite sample and not the traits of any one single individual.

When a chemist enters into his first connection with industry, he should not assume that the duties of the initial position will be those that he will follow throughout his professional career. The chances are that he will soon be asked to take up a new assignment which bears only little resemblance to his first work. He should consider this a compliment from his superiors as well as an opportunity to broaden his experience. This will mean probably that he has to do some extra studying and working on his own time. He can assume that he has been successful, if at a later date he is again asked to take up new duties which appear remote from any that he has already had. It is through this constant shifting from one position to another that a man develops and becomes of increasing value to himself and his company. If you look up some of the biographies of these successful men, you will find many who started as research chemists, changed to plant control chemists, to shift foremen, to foremen, to superintendents, to market research directors, to research directors, to vice presidents in charge of research, to executive vice presi-

dents in charge of research, to executive vice presidents, and finally to presidents. There are variations in this order of increasing responsibilities. This is a long hard climb and can take from twenty to thirty years. Why does the chemist get there? Because he acts as a professional man all the way.

You will find that these leaders have done much for the science of chemistry and more particularly for the chemist as a professional man. They have had time to be interested in actually promoting the science and in doing things to improve the status of the chemist.

Because of their rise from the ranks, these leaders appreciate the problems of chemists, not only those in their own companies but chemists as individuals and as a group, and welcome the opportunity to do still more for their colleagues.

We have talked about the "uncommon chemist," now what about the common chemist? The first thing to be said is that chemists are individual people. At the 1952 Annual Meeting of THE AMERICAN INSTITUTE OF CHEMISTS, Dr. Bywater spoke on "The Chemist and His Industry — Chemical Companies are People." He stressed also that chemists are people. I heartily endorse the thoughts expressed in his able presentation and wish to look now at the matter from a slightly different angle.

Problems to Solve

We were rudely awakened by the recent sulphur shortage to the disquieting fact that some of our natural resources are being depleted rapidly and that the United States might become a "have not" instead of a "have" nation. The sulphur crisis was of national and world significance, but it was a challenge to the sulphur producing industry and in the last analysis to the chemical industry. There is no reason why we chemists outside the sulphur industry should stand idly by and deplore the exhaustion of the supply in our great sulphur domes. We should realize that there are many other sources of sulphur, the utilization of which wait on the ingenuity of a chemist to find an economical method of production. Some real quantity of sulphur is now being produced by methods other than the Frasch method of getting it out of the ground. This is an instance of the chemist accepting his responsibility to industry.

The Paley Report of "The President's Materials Policy Commission" lends point to the discussion. The over-all title of the report is "Resources for Freedom" published in five volumes. For immediate concern, Volume IV "The Promise of Technology" is of greatest interest. It should be because it was written by members of our own profession. If you have hobbies in chemical fields outside that of your employers' in-



terest, you will find there much that can be of keen interest. It gives a brief review of the status of the development of many chemicals (and related products) and lists many unsolved problems in connection with each. For example: Lithium is the lightest of the metals, with a weight less than a third that of magnesium and thus would seem suitable for aeronautical applications. But lithium reacts with moisture in the air or to immersion in water so readily that it is unsuitable for use except in an inert atmosphere or dry air. The solution to this problem is a challenge to the industry and that means to the chemist.

Then we can look at silicon, an extremely abundant element, comprising twenty-seven per cent of the earth's crust. It is useful in many applications as silica or in the form of silicates. Its use as a metal has been and still is limited because it lacks ductility and because of its brittleness. Anyone can work on this problem, he does not have to be in the metallurgical industry.

Consider that most abundant of raw materials — air. Roughly eighty per cent of air is oxygen but in spite of its availability we have no really economic process of securing it.

The next most abundant natural resource is sea-water. A recent advertisement of a chemical company stated that each cubic mile of sea-water contains 18,000,000 tons of magnesium. How far have we gone in utilizing the wealth contained in sea-water? Not far. We get some salt, some magnesium and some bromine.

Support to Industry

There is still another angle to consider. We can agree that the welfare of the chemist is bound to the welfare of the chemical industry. A sound and expanding industry provides a demand for chemists and presents opportunity for advancement and security. From another point of view it may be said that a sound and expanding chemical industry depends upon the initiative and loyal support of the chemists in the industry. The more new products the chemist produces the more the industry expands and at the same time benefits the chemist through the creation of new jobs.

There are many additional ways in which the chemist can serve industry and at the same time assist in creating and maintaining a favorable public relations position for the industry.

Any discussion of an industry and

its people must include the attitude and policies of the government toward business in general and to certain businesses in particular. It behooves the chemist to be informed on these matters and to be alert to the possible effects on his own industry. It is so easy for zealous government officials to transfer from one industry to another quite unrelated industry the enforcement of laws or directives under their jurisdiction. Some of the large companies in the food distribution industry have been under attack for years on the charge of being a monopoly. As individuals, not as chemists, we were interested in this policy because the outcome would inevitably affect our own cost of living. We should be interested as chemists also because there are some chemical companies large enough to attract the attention of those looking for possible monopolies. The chemist can be of service to his industry by being informed on these conditions and taking a stand in his own community. The most difficult aspect is to get the facts. In spite of our marvelous developments in means of communication we still may not get facts. We are exposed to newspapers and magazines, to news-casters and commentators on radio and television and much of the information is not fact.

The chemist should be vitally interested in the anti-trust suit against a large chemical company, currently

in the courts. It would be short-sighted of any chemist to adopt the attitude that the outcome of this suit would not affect him. Should the government be successful in this case, we can be sure that other chemical companies will also be considered too big. No one can tell where such a program would stop. The effects on the industry would be to start a trend for less expansion, thus limiting the development of new products and the attendant new jobs. If you as a chemist are satisfied that the facts do not justify the bringing of this suit by the government then it is proper that you should work toward the development of a favorable public attitude toward this company and incidentally to the industry as a whole.

Because the chemical industry is so big and because it has had a tremendous impact on the public in many ways, it was to be expected that some pressure groups would be formed that are inimical to the interests of the chemical industry. Such groups are interested usually in one or another segment of the industry rather than the whole. One of the best examples of this sort of thing is the attempt of Organic Farming Inc., to discredit the use of chemical fertilizers. Over the years this group, or the leaders of this group, has tried to discourage the use of chemical fertilizers by the argument that the soil was depleted, that the beneficial earthworms were destroyed and that

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the produce was not suitable for food. It has been heartening to observe the way in which the editors of *Chemical Week* met this challenge in the interests of the chemical industry. Their handling of the subject has done much to inform people of the facts and to foster good public relations for the industry. We may assume that chemists were responsible and should be given the credit.

Another subject is the fluoridization of drinking water for the purpose of preventing or decreasing dental caries among children. The facts as I have been able to get them are that a careful research program has been carried out, beginning on a small scale and finally on a large enough scale to confirm the initial results. In several instances when cities have proposed installing the fluoridizing system in the municipal water supply, there have been loud outcries against it. The usual objection is that the chemical industry is trying to exploit the public with a poisonous chemical. Here again, the chemist can do much to keep favor-

able public relations for the chemical industry.

Pollution Abatement

Wherever there is a chemical plant there is the pollution problem. This practically always has two aspects, atmospheric and water. To whom should the public look for assistance in solving these problems if not to the chemists? Who can do a better job of public relations for his company and the industry than the chemist? We know of instances where chemists have taken an active part in pollution abatement programs with resultant betterment of public relations for the industry.

Fire Prevention

Another field in which the chemist can be useful in promoting good public relations for the industry is that of the prevention of fire. Reference is made particularly to the loss of life from flammable clothing, plastic toys and decorative items. There have been periodic instances of highly flammable textiles being used for children's clothes with fatal results. At Christmas times there have been flammable tree decorations on the market. The unfortunate occurrences from these products reflect on the chemical industry. The chemist should do all he can to keep such materials out of commerce.

Advertising

The chemist should take an interest in the advertising that is done by the chemical industry. The first place

to make his influence felt is in connection with the advertising of his own company. His opinion on the advertising of others can also affect the tone of chemical advertising. There is no question that the advertisement with the sensational claims gets the greatest readership but the net result is bad from the public relations standpoint.

Career Guidance

The current scarcity of chemists and chemical engineers offers an opportunity for chemists to do an effective piece of public relations work. In order to interest high school students in choosing a career in science, many chemists from industry are meeting with the students and giving them counsel and advice. It is not possible to overestimate the amount of good will for the chemical industry that can be generated by this type of work. The mere fact that an industrial man will take the time and have interest in helping the student makes a tremendously good impression on the parents and teachers.

In summary, I have given a few examples of how the chemist in his everyday life can do much to create and maintain favorable public relations for the chemical industry. You will doubtless think of many more.

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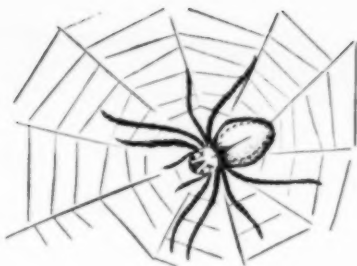
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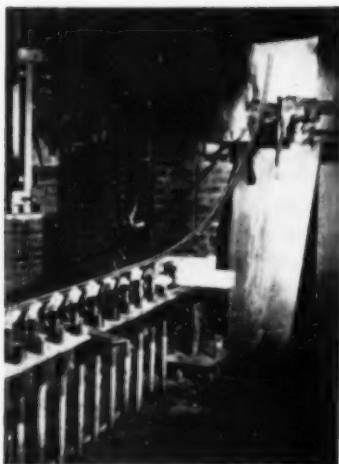
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Mapping the Markets for Soil Conditioners

Richard M. Lawrence

*Senior Market Analyst, General Development Department,
Monsanto Chemical Company, St. Louis, Mo.*

(Synopsis of a talk given at the Thirtieth Annual AIC Meeting, held at Philadelphia, Pa.)

THE demand for chemical soil conditioners is based on their ability to combat the age-old problems of poor soil; mud, clods, dust and crust. This results in higher crop yields, better emergence of seedlings, and faster growth, with important commercial advantages. Methods used in the original market survey on "Krilium" soil conditioner were outlined.

Major effort was placed on analysis of agricultural records to find crops valued at over \$1000 per acre. Such "premium crop land" totaling more than 350,000 acres, comprises the most promising agricultural markets for chemical soil conditioners, now the object of a huge campaign of testing and sales development. This land is tilled by approximately 136,000 potential customers such as commercial greenhouse operators, truck farmers, and tobacco growers.

The eight-million upper income families with some 200,000 acres of home gardens are also a major market. The great highway building program, with tremendous earth-moving operations, creates thousands of acres of bare hillside which can

be advantageously treated with chemical soil conditioners to prevent erosion.

"Whatever the methods of the survey, the dimensions of the potential market are vast", it was concluded in estimating the market potential for unusual new products such as soil conditioners. There are three general approaches:

1. Determine the commercial advantage of the product such as greater returns to truck farmers and greenhouse operators. Better emergence of seedlings and earlier-to-market crops are major advantages.
2. Determine the prospective displacement of related products, such as peat moss and other mulching agents.
3. Study of special interests such as those of the home gardener, represented by eight million upper income families which spend nearly one-half billion dollars annually on this hobby.

Powerful basic trends will increase the demand for soil conditioners.

First is the need for more intensive farming, brought about by rapid population growth. "Every ten months this nation adds a city the size of Philadelphia and another two million mouths to feed."

Since the turn of the century, almost one-third of the top soil has been lost by erosion. With increasing farm labor costs and rising land values, it is imperative that every acre be made more productive. The shorter work week and the movement to the suburbs, which provide more leisure and more space for home gardening, constitute other trends favoring the use of soil conditioners.

Introduced: A new vinyl film, "porolated", which has 700-per cent greater moisture-vapor transmission rate than the usual plastic film, by Goodyear Tire and Rubber Company. It is being manufactured into articles of rainwear, infants items, and household articles, where air transmission is as desirable as water resistance.

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New Consultant: Dr. Lauren B. Hitchcock, F.A.I.C., who has opened an office in the Chemists' Building, 50 East 41st St., New York, N. Y., where he will specialize in problems of administration of research and development in industry. He was recently director of research and development of National Dairy Products Corp., and president of its subsidiary, National Dairy Research Laboratories, Inc., which continues as an important client. Previously he has taught at the University of Virginia and has been connected with Hooker Electrochemical Company and the Chemical Division of the Quaker Oats Company. He is active in many chemical organizations.

Awarded: To Dr. John E. McKeen, Hon. AIC, president of Chas. Pfizer & Co., Inc., Brooklyn, N. Y., the Order of Vasco Nunez de Balboa, with rank of Knight Commander, the highest civilian honor of Panama.

Elected: John P. Remensnyder, F.A.I.C., chairman of the Board of Heyden Chemical Corporation, New York, N. Y., as vice president of McArthur Chemical Co., Ltd., oldest chemical company in Canada. A majority stock interest in McArthur is held by St. Maurice Chemicals, Ltd., of Montreal, jointly owned by Heyden and Shawinigan Chemicals, Ltd.

Seventy-fifth Anniversary of The Chemical Society of Japan

The Chemical Society of Japan is celebrating its seventy-fifth anniversary at meetings to be held October 23rd to October 29th in Tokyo.

Dr. Gustav Egloff, Hon. AIC, who has been invited to give four different lectures there on that occasion, will also present greetings from THE AMERICAN INSTITUTE OF CHEMISTS, in the form of a scroll bearing this wording:

Greetings

from

THE AMERICAN INSTITUTE
OF CHEMISTS

to the

Chemical Society of Japan

The members of The American Institute of Chemists congratulate the Chemical Society of Japan on its seventy-five years of fruitful service, and they offer best wishes with confidence that the Chemical Society of Japan, through the science of chemistry, will bring great benefits to all peoples.

Elected: J. V. N. Dorr, F.A.I.C., of the Dorr Company, New York, as vice president of the Technical Societies Council of New York, Inc.

Honored: Dr. William Blum, Hon. AIC, chemist at the U.S. Bureau of Standards from 1918 until his recent retirement, who received the honorary degree of Doctor of Science from the University of Pennsylvania in June. He was graduated from that University in 1903 with the degree of bachelor of science in chemistry. After teaching chemistry at the University of Utah, where he earned the degree of doctor of philosophy, he joined the Bureau of Standards in 1909. In 1926 he received the first Gold Medal of THE AMERICAN INSTITUTE OF CHEMISTS. In 1944 he was awarded the Edward Goodrich Acheson Gold Medal and Prize for his contributions to the field of electrochemistry. Dr. Blum is co-author of a standard work on Electroplating and Electroforming. He has published numerous articles in the field.

Speaker: Dr. Foster D. Snell, F.A.I.C., who delivered the following papers in Europe this summer: "The Removal of Fission Products by Detergents," 26th International Congress of Industrial Chemistry, Paris, France; "Detergency as Applied to Radiological Decontamination," Society of Chemical Industry, Nottingham, England; and "The Role of Sequestrants in Radiological Decontamination," 13th International Congress of Pure and Applied Chemistry, Stockholm, Sweden.

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Candidates Certified by the American Board of Clinical Chemistry

Dr. Joseph W. E. Harrison, F.A.I.C.

*Secretary-Treasurer American Board of Clinical Chemistry, Inc.,
Lawall and Harrison, 1921 Walnut St., Philadelphia, Pa.*

THE American Board of Clinical Chemistry, Inc., since its formal organization in April 1950 has received requests for applications from 689 individuals. Of these 409 were completed and filed with the necessary data and supporting information. The Board during the past three years has met on several occasions at which 379 of the filed applications were considered, and 231 of these were granted certification.

Applications were received from nearly every state as well as Canada, Hawaii, the Philippines, Puerto Rico, and an occasional one from countries where United States Army or Navy personnel are stationed. The greater number of applications originated from areas of concentrated population and centers of scientific or medical training: New York, Pennsylvania, Illinois, California and Louisiana being outstanding. Many of those applying conduct private laboratories; the majority, however, are connected with institutional work.

The Board carefully weighed the facts submitted, and in many instances found it desirable to seek additional information of those in the

same field and area as the applicant.

Those certified to date include the names of many recognized for their numerous contributions toward the advancement of the profession; others who are younger will, it is expected, advance themselves to the same position of respect as the years pass.

Among the names of those certified up to and including the Annual 1953 Spring Meeting of the Board, with their affiliation at the time of certification and the certificate number granted, are those of the following members of THE AMERICAN INSTITUTE OF CHEMISTS:

- 86—Beltz, John H., Bell & Beltz, Laboratories, Philadelphia 40, Pa.
- 131—Carlson, Warner William, Medical College of Alabama, Birmingham, Ala.
- 124—Carmichael, Emmett B., Medical College of Alabama, Birmingham, Ala.
- 77—Crookshank, Herman, R., Bureau of Animal Industry, USDA, Amarillo, Texas.
- 180—Dubowski, Kurt M., The Norwalk Hospital, Norwalk, Conn.
- 126—Free, Alfred H., Miles-Ames Research Lab., Elkhart, Ind.
- 7—Gaebler, Oliver H., Henry Ford Hospital, Detroit, Mich.
- 114—Gardiner, Eli, Gardiner Laboratories, Forest Hills, N. Y.

- 3—Harrison, Joseph W. E., LaWall and Harrison Research Laboratories, Philadelphia, Pa.
- 53—Horwitt, Benjamin N., Ochsner Medical Foundation, New Orleans, La.
- 89—Hudson, Alfred Edward A'Courte, Goldsboro, N. C.
- 119—Katz, Albert Barry, Hackensack Clinical Laboratory, Hackensack, N. J.
- 120—Kaye, Sidney, Commonwealth of Va., Dept. of Health, Office of Chief Med. Ex., Richmond, Va.
- 39—Keller, Alexander G., University of Pennsylvania Graduate Hospital, Philadelphia, Pa.
- 137—Krasnow, Frances, Guggenheim Dental Clinic, New York, N. Y.
- 70—Macy-Hoobler, Icie G., The Child Research Center of Michigan, Detroit, Mich.
- 154—Oser, Bernard L., Food Research Laboratories, Inc., Long Island City, N. Y.
- 155—Osgood, Harlow S., Swedish Hospital, Seattle, Washington.
- 174—Perry, Margaret C., Columbia Hospital, Milwaukee, Wis.
- 45—Pierce, Harold Barnard, University of Vermont College of Medicine, Burlington, Vt.
- 34—Pierce, Leo Francis, L. F. Pierce Labs., Los Angeles, Calif.
- 35—Pomerene, Elizabeth, St. Luke's Hospital, Mineola, N. Y.
- 109—Ross, George, Montifiore Hospital for Chronic Diseases, New York, N. Y.
- 110—Sample, Albert Barron, Bryn Mawr Hospital, Bryn Mawr, Pa.
- 25—Samuelson, George Severine, New York State University Medical Center at New York, Brooklyn, N. Y.
- 10—Samson, Meyer, Samson Laboratories, Philadelphia, Pa.
- 67—Sperry, Warren M., New York State Psychiatric Institute, New York, N. Y.
- 219—Trimble, Harry Clyde, Harvard University Medical School, Boston, Mass.

Dedicated: The Merck Institute for Therapeutic Research, at Rahway, N. J., May second, with nearly 400 scientists, educators, government officials, and business leaders present. The new, 35,000-square foot, building completes a four-year construction program that provides the Institute with one of the most modern of therapeutic research centers. Gov. Alfred E. Driscoll of New Jersey spoke on "Private Research and Public Welfare;" Dr. Alan Gregg, vice-president of the Rockefeller Foundation, discussed "Education as a Pharmaceutical Adjuvant," and George W. Merck, chairman of the Board of Trustees of the Merck Institute and board chairman of Merck & Co., Inc., introduced the speakers.

The activities of the Merck Institute include: (1) Research on fundamental problems aimed at adding to the general fund of knowledge; (2) Investigations into the pharmacology and toxicology of specific drugs and chemicals; (3) Assay of chemicals and drugs for potency and safety; (4) The development of methods and the design (and construction) of instruments needed for these purposes. The Institute is staffed by 153 persons, of whom 103 are technical personnel. One-fourth of the technical staff holds M.D. or Ph.D. degrees, and one-half of the staff has Master's or Bachelor's degrees.



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Albin Warth, *Baltimore Chapter*

National Council Meetings

Meetings of the AIC National Council are scheduled to be held at The Chemists' Club, 52 East 41st St., New York, N. Y., at 6:00 p.m., on the following dates:

Sept. 16, 1953

Nov. 11, 1953

Jan. 13, 1954

Mar. 10, 1954

Apr. 14, 1954

June Meeting

The 290th meeting of the National Council was held June 30, 1953, at The Chemists' Club, New York, N. Y. President L. T. Work presided.

The following officers and councilors were present: F. A. Hessel, D. B. Keyes, J. H. Nair, M. Sittenfield, R. Stevens, L. Van Doren, F. E. Wall, L. T. Work and D. Young (alternate). K. M. Herstein and V. F. Kimball were present.

The Council recommended that chapter refunds be paid in May and in October.

President Work announced that the Chicago Chapter will hold a luncheon for AIC members during the ACS meeting in Chicago. He reported that he had spoken on scientific manpower before the

Engineering Manpower Commission.

The report on the Annual Meeting finances, prepared by John H. Staub, treasurer for the Annual Meeting, was presented and accepted with a vote of thanks to Mr. Staub for his excellent work.

The Secretary reported that the membership now numbers 2631.

The names of twenty-seven persons in arrears in dues and of thirteen persons whose addresses are missing were dropped from the membership roll.

The death of LaVerne E. Cheney, F.A.I.C., was announced, followed by a minute of silence in tribute to him.

Mr. Nair reported as chairman of the Committee on Membership.

Mr. Herstein announced that Dr. Robert Mesrobian will be the new chairman of the New York Chapter's own membership committee.

Dr. Keyes sketched the background of the present situation in scientific manpower and discussed future plans for the Committee on Manpower.

Mr. Stevens reported that a luncheon meeting is being arranged by the New England Chapter.

Mr. Herstein announced that the opening meeting of the New York Chapter's program would be held on October 22nd. Among other activities, the New York Chapter is making a survey of the employment agencies in the New York area that serve the chemical profession.

Mr. Young stated that the New Jersey Chapter is making a survey to determine what kind of a person a chemist is.

The New Jersey Chapter will serve as host for the Annual Meeting in 1954.

The following new members were elected:

FELLOWS

Boehm, Edwin J.

Vice President, Prior Chemical Corporation, 420 Lexington Avenue, New York, N. Y.

Carter, Albert S.

General Assistant Director, Jackson Lab., E. I. du Pont de Nemours & Company, Wilmington 99, Dela.

Coghill, Robert D.

Abbott Labs., North Chicago, Ill.

Cortelyou, Warren Pratt

Professor and Chairman, Department of Chemistry, Roosevelt College, 430 South Michigan Avenue, Chicago 5, Ill.

Dunn, Max S.

University of California at Los Angeles, Chemistry Building, West Los Angeles, Calif.

Farber, Milton

Senior Chemist, Herstein Labs., Inc., 66 Beaver Street, New York, N. Y.

Fugger, Joseph

Assistant Professor of Research, Antioch College, Yellow Springs, Ohio.

Henry, Dan L.

Partner, Law & Company, P. O. Box 1558, Atlanta 1, Ga.

Hill, Luther Randolph

President, Process Designs, Inc., 45 North Broad Street, Ridgewood, N. J.

Kapp, Benjamin

Western Representative, Van Ameringen-Haebler, Inc., 517 West 57th Street, New York 19, N. Y.

Kirby, Ben Harrison, Jr.

Chemist, General Aniline & Film Corp., Grasselli, N. J.

Lawson, James A.

U.S. Department of Commerce, National Production Authority, 3-10-G New General Acct. Office Building, Washington, D.C.

Mencher, Hymen

Chief Chemist, Extrin Foods, Inc., 70 Barclay Street, New York 7, N. Y.

Perrine, J. Harold

Manager, Administration Division, Research & Development Department, Sun Oil Company, Marcus Hook, Pennsylvania.

Pommer, Alfred Michael

Chemist, Ordnance Electronics Division, National Bureau of Standards, Washington 25, D.C.

Schoenholz, Daniel

Research Group Director, Foster D. Snell, Inc., 29 West 15th Street, New York 11, N. Y.

Segura, Gonzalo Jr.

Chief Radiochemist, Foster D. Snell, Inc., 29 West 15th Street, New York 11, N. Y.

Smith, B. Ashby

Chemist, U.S. Dept. of Agric., Southern Regional Research Lab., 2100 Robert E. Lee Blvd., New Orleans 19, La.

Smith, Theodore

Chemist, Celon Company, Muscatine, Iowa.

COUNCIL

Thompson, John E.
*President, Reliable Packing Co., P. O.
Box 2023, Chicago 9, Ill.*

Tinker, John Marlin
*Division Head, E. I. du Pont de Nemours & Co., Inc., Jackson Lab., P. O.
Box 525, Wilmington 99, Dela.*

Vliet, Elmer Bennett
Vice President and Scientific Administrator, Abbott Labs., North Chicago, Ill.

Weissberg, Melvin
*Chief Chemist, Brilco Labs., 1551 63rd
Street, Brooklyn 19, N. Y.*

MEMBERS

Dusenbury, Joseph H.
*Research Chemist, Calco Chemical Division, American Cyanamid Co., Bound
Brook, N. J.*

Leven, Martin R.
*Ditto Inc., Harrison & Oakley Blvd.,
Chicago, Ill.*

ASSOCIATES

Amante, Gene Davis
Chemist, Processing Laboratory, Eastman Kodak Company, Las Palmas Avenue, Hollywood, Calif.

Cobb, James Lamont
1-5 Process & Development, Calco Chemical Division, American Cyanamid Company, Bound Brook, N. J.

Dean, Robert Waters
General Foods, Inc., Central Labs., 11th & Hudson Streets, Hoboken, N. J.

Francis, Loretta Teresa
81 East 28th Street, Bayonne, N. J.

Warren, Mary Jane
83 Cloister Place, Staten Island 6, N. Y.

Zegelbone, Leonard
Central Research Labs., General Foods Corp., 11th & Hudson Street, Hoboken, N. J.

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Will You Come

Sept. 8, 1953. Chicago Chapter AIC Luncheon for members attending the 124th meeting of the American Chemical Society in Chicago. 12:15 p.m. Illinois Room, Palmer House. Speaker: Dr. Otto Eisenschiml, F.A.I.C., "Self Analysis."

Oct. 1, 1953. Los Angeles Chapter. Elks Club, 607 S. Park View St., Los Angeles, Calif. Social hour 6 p.m. Dinner 7 p.m. \$3.40. Speaker: Dr. Robert E. Vivian, dean of the College of Engineering of the University of Southern California. "Around the World for M.S.A." Dr. Vivian's talk covers his service as chemical production specialist for the U.S. Mutual Security Agency.

Oct. 9, 1953. Chicago Chapter Award of the 1953 Honor Scroll to Dr. Hilton Ira Jones, F.A.I.C. Dinner, Furniture Club of America. Speakers include Dr. Roy C. Newton, F.A.I.C. and Chester Gould. Reservations: \$4.00. Edward Rapkin, Armour Research Laboratories, 1425 West 42nd Street, Chicago 9, Illinois.

Oct. 22, 1953. New York Chapter. Opener Meeting. Informal Dinner at Stauffers, 540 Fifth Ave., New York, N. Y. Talk in the lighter vein by Dr. Walter R. Smith, F.A.I.C., of Godfrey L. Cabot, Inc. Boston, Mass.

Oct. 30, 1953. Ohio Chapter. Ohio Room, Mayflower Hotel, Akron, Ohio. Dinner. Award of Hon. AIC Membership to Dr. R. P. Dinsmore, F.A.I.C., vice president, Goodyear Tire & Rubber Co., Akron, Ohio. Reservations: Harold M. Olson, The Harshaw Chemical Co., 1945 E. 9th St., Cleveland 6, Ohio.

Dec. 3, 1953. New York Chapter. Joint Meeting with American Chemical Society. Dinner at Carbide & Carbon Cafeteria, 30 East 42nd St., New York, N. Y. Speaker, Dr. Robert Gunning, "How to Improve Your Technical Writing."

Opportunities

Doris Eager, M.A.I.C.

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Assistant Product Sales Manager: Organic Chemicals. Chemical or chemical engineering degree. Experience in selling and sales management with basic organic chemicals. Capable of addressing meetings; collecting, interpreting and distributing information on production performance, product availability, competitive activities. Age 35-45. Salary up to \$15,000 plus usual benefits and incentive plan paying up to 30% of salary. Location midwest. Box 91, THE CHEMIST.

General Manager: Successful general management experience in production, sales and profit goals. Production and administrative experience in chemical process manufacturing industry. Knowledge of marketing and promotion methods. Capable of coordinating sales and production. Ability to plan and carry through programs. Salary \$25,000 or better dependent upon capabilities. Box 93, THE CHEMIST.

Senior Chemist: Staff Assistant to Director of Development, between 30-35 years of age; Ph.D. or equivalent in physical or organic chemistry. Original thinker with initiative to establish and carry through own programs with minimum supervision. Approximately 5 years experience in chemical research and development with industrial organization. Location midwest. Box 95, THE CHEMIST.

Supervisor, good production man. Experience wanted in nickel-chrome plating and anodizing, to work in factory of 300 employees of firm that fabricates and finishes sheet metal decorative trim. \$6,500 up. Box 97, THE CHEMIST.

Librarian for chemical library. Woman. Metropolitan area of New York City. Degree in chemistry. Box 99, THE CHEMIST.

Chemists Available

Biochemist: F.A.I.C., Ph.D. with basic engineering courses. Main experience food and pharmaceuticals; research and development, control, technical service and writing; some production; some teaching. Mature, healthy and energetic, four dependents. Desires responsible research for supervisory position. Will relocate. Box 92, THE CHEMIST.

Organic Chemist: Ph.D., F.A.I.C. Diversified experience, including supervisory, in the synthesis and development of pharmaceuticals from laboratory through full scale production, including formulation work. Publications. Age 33, family. Desires challenging opportunity with good growth potential. Box 94, THE CHEMIST.

Organic Chemist: Ph.D., 1951, extensive background in organic synthesis and development of analytical methods. Seeks position as project leader. Prefers location in New York area. Box 96, THE CHEMIST.

New Building: For Eli Lilly and Company, Indianapolis, Ind., to provide 41,000 sq. feet of floor space for development and control administration, biochemical manufacturing administration, the medical division, research library, and patent department. Work will be completed in mid-1954.

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For Your Library

Biological Chemistry

An Introduction to Biochemistry. By Alexander Gero. Blakiston Co., Inc., 1952. 340 pp. \$5.00.

Dr. Gero is associate professor of pharmacology at Hahnemann Medical College, Philadelphia, and has written this volume for the undergraduate student preparing for medical or dental school or for graduate study in one of these sciences. In most texts on the subject the biological view of biochemistry has been unduly stressed, giving to college courses on the subject unnecessary duplication of subject matter studied in medical school, where on the other hand, students need thorough training in organic and physical chemistry not always provided by undergraduate courses.

For these students, Dr. Gero's treatment of biochemistry will be most useful since his text is a somewhat advanced organic chemistry with particular emphasis on that matter most pertinent to physiological chemistry. He has filled in the gaps so often left in elementary organic chemistry courses, such as optical activity, chemistry of heterocycles, etc. And the book contains two chapters giving a brief and elementary summary of those principles of physical chemistry necessary for an understanding of biochemistry.

—DR. FREDERICK A. HESSEL, F.A.I.C.

P-V-T Relationships of Organic Compounds

By Robert R. Dreisbach, *Handbook Publishers, Inc.* 1952. 8½ x 11", 303 pp. \$10.00.

A major purpose of this book is to provide a readily understood reference volume for reading directly the variation of vapor pressure with temperature of a compound and to provide by means of simple equations and their parameters a means for calculating the rate of change in boiling point. During the last year, the reviewer, an organic chemist, has tested the tables for a variety of compounds including aromatic naphthenic and paraffinic hydrocarbons, halides, alcohols, aldehydes and ketones, and esters. The calculated boiling points have been

in remarkable agreement with the experimental values. Further, the calculated values have permitted a choice to be made among several values variously reported for the same compound.

The use of the tables is clearly set forth in the first fifteen pages by means of sample calculations. About an hour or two of study is all that is required to become acquainted with their use. Then follows 230 pages of tables representing the data for the 23 families of organic compounds. Pages 255 to 293 are unusual for a book of this type. They present the physical chemistry behind the tables and equations in a clear, concise and complete manner starting with the history of the Antoine equation and of the Cox chart. Included are several helpful nomographs for boiling point variations with pressure. Finally, there are several pages devoted to "How to determine the Cox chart family to which a compound belongs."

This book has unquestioned utility for the organic chemist, but it also is valuable for the engineer who must know or estimate the latent heat of vaporization at any temperature, the orthobaric vapor density to a reduced temperature (T_r) of 0.92, and the densities of liquids at various temperatures. Additional information concerns the estimation of critical temperatures of polar and non-polar substances and the accuracy of density and refractive index measurements.

The format of the book is exceedingly well adapted to the extensive tables. The pages are 8½ by 11 inches. Textual matter is presented by dividing the pages in two so as to make 5½ by 8½ pages, which are quite easy to read.

—DR. ERNEST I. BECKER, F.A.I.C.

Cellulose, The Chemical That Grows

By William Haynes. Doubleday & Co., Inc., 1953. 386 pp. \$4.00.

The enthusiasm necessary for writing a book is often dissipated in the effort of securing and expounding the details of the story. In Haynes' new book the enthusiasm has survived; it scintillates through the carefully selected material with such vigor that it happily can be reflected in this review. Here is writing

for the non-specialist without the sacrifice of accuracy; here is dramatization without distortion of the facts. Historical personalities, their research and industrial work emerge strikingly alive from these pages. Of Robert Hooke, the author of *Micographia* (1664), we read (p. 106): "The doctor was an efficient, brainy egotist who took no pains to hide his disdain for the mistakes of the rest of blundering mankind." About the development of plastics, we find (p. 243): "During the depression decade, 1929-39, synthetic plastics blossomed forth like a forsythia bush in April." The advent of "dissolving cellulose" is explained with dates, names, and cost figures and summarized (p. 281): "History repeated itself: the same source, wood pulps, that broke the old cellulose bottleneck for paper a century ago, was destined to give us chemical cellulose far beyond the supply available from linters."

Although Haynes wrote for that fabulous being, the intelligent layman, many a cellulose chemist may read this book with the profit obtainable from a well-presented synopsis of the whole field. The statistical figures in the appendices should interest not only an economist. The only criticism that the "expert" may raise could be directed against the statements on page 76 concerning lignin. We have learned much about this "obdurate material", and considerable quantities of it are being used — although by far not all of it that is available."

DR. EDUARD FARBER, F.A.I.C.

A Study of Antimetabolites

By G. W. Wooley. John Wiley & Sons, Inc. 1952. 269 pp. 6 1/4" x 9 1/4". \$5.00.

Antimetabolites produce deficiency diseases in living organisms. Their effect may be studied on animals, plants, and other living things. Some antimetabolites occur normally as regulators of metabolism. Others such as the sulfamide compounds have been found useful in the treatment of diseases. Antimetabolites are related to the enzyme substrate, to the product of reaction or the coenzyme. Dr. Wooley has placed himself in an enviable position for having exceedingly well presented the youngest members of the biochemical family, the antimetabolites.

—DR. HENRY TAUBER, F.A.I.C.

Chemical Books Abroad

RUDOLPH SEIDEN, F.A.I.C.

Strassenbau, Chemie und Technik Verlagsgesellschaft, Heidelberg: *Schaum*, by E. Manegold; 1953, 512 pp. (291 ill.), DM 64.—Soap bubbles are of interest not only to children, but—for various scientific reasons—to physicists, chemists, mathematicians and technicians as well. A thorough investigation of all these aspects is being offered by Prof. Manegold, one of the foremost colloid chemists, in his new book. He gives a general review of foams, particularly polyhedron foam, and then discusses in detail foaming, foaming power, foam stability; capability of aqueous and organic solutions for foam formation; structure of surface films; properties of lamellas, bubbles, and foams; formation, uses, and destruction of foams. The needs for foams in industry and technique are manifold—e.g., for fire fighting, in flotation processes, in the production of certain types of concrete, glass, insulating materials, rubber, plastics, soaps, bread, beverages, medical and cosmetic preparations, insecticides, etc.

Vandenhoeck & Rupprecht, Goettingen: *Kurzes Handbuch der Chemie, Vol. 2: Biz-K*, by W. Koglin; 1953, 496 pp., DM 49.—Like the first volume (*THE CHEMIST*, February, 1953), this second volume of the new encyclopedia of chemical compounds contains a wealth of data arranged in a manner understandable to readers anywhere. There are 11,764 chemicals described in this book—from Bizylo[0,4,4]-dekan to Kyrosit; these in only a few lines, others many columns long; e.g., Holz (wood) more than 12 pages, Kadmium (Cd) and its salts almost 6 pages, etc. A monumental work, invaluable to all chemists and engineers!

Brandstetter Verlag, Wiesbaden: *Englisch-deutsches technisches Woerterbuch*, by R. Ernst; 1951, 671 pp., DM 19.80.—The second volume of this dictionary gives the German meaning of over 50,000 English terms of industrial technics and of related fields of science and engineering. The first volume, Ernst's German-English dictionary, was reviewed in this column in October, 1950.

Something New

"Materials Used to Combat Corrosion in Steam-operated Vacuum Ejectors," David H. Jackson, F.A.I.C. Request it from Croll-Reynolds Co., Inc., 17 John St., New York 38, N. Y.

"Standard Unit Rectifiers and Their Applications." Brochure. American Rectifier Corporation, 95 Lafayette Street, New York, N. Y.

"The Bellows Drill Press Feed." Bulletin. The Bellows Company, 222 West Market St., Akron, Ohio.

"RCL Catalog of Nuclear Instruments." Professional Equipment Co., Inc., 149 Broadway, New York 6, N. Y.

"Western Resources Handbook." For information write Stanford Institute, Stanford, Calif.

"Preferred Unit Steam Generator." Bulletin 2000. Preferred Utilities Manufacturing Corp., 1860 Broadway, New York 23, N. Y.

"New Metal Powders." Information. The Glidden Co., Chemical-Pigment Division, 1717 Summer St., Hammond, Indiana.

"Pilot Plant and Laboratory Safety Fire and Explosion Problems," by Mathew M. Braidech, F.A.I.C., Director of Research, National Board of Fire Underwriters, 85 John St., New York, N. Y.

"G.A.B. Interference Filters." Bulletin No. 180. Photovolt Corp., 95 Madison Ave., New York 16, N. Y.

"New Line of Open Channel Flow Meters." Bulletin F1606. The Bristol Company, Waterbury 20, Conn.

"Dag Colloidal Graphite for Assembly and Run-In of Engines and Machinery." Bulletin No. 421. Acheson Colloids Co., Division, Acheson Industries, Inc., Port Huron, Mich.

"Hydriol Demineralizer Units." Folder. A. E. Tomkins and Co., 1828 Columbia Road, N.W., Washington 9, D.C.

"The Effect of the Use of Floor Wax on Vinyl Flooring," a report by Cyril S. Kimball, F.A.I.C. Chemical Specialties Manufacturers Association, Inc., 110 E. 42nd St., New York, N. Y.

"Gasification of Lignite in a Commercial-Scale Pilot Plant." Investigation 4940. Free. Bureau of Mines, Publications Distribution Section, 4800 Forbes St., Pittsburgh 13, Pa.

"Ortho-Ethylnitrobenzene and ortho-Ethylaniline." Bulletin No. 0-79. Monsanto Chemical Company, St. Louis 4, Mo.

"Atom Model Sets." Booklet. Fisher Scientific Co., 717 Forbes St., Pittsburgh 19, Pa.

"Seed Treatments with Peroxygen Chemicals." Bulletin No. 33. Becco Sales Corp., Buffalo 7, N. Y.

"Styrene Oxide." Booklet. Dow Chemical Co., Midland, Mich.

"Maisch Automatic Pipetting System." Information. Central Scientific Co., 1700 Irving Park Road, Chicago 13, Ill.

"Ethyl Acetate, Properties and Essential Information for Safe Handling and Use." Data Sheet SD-51. \$0.25. Manufacturing Chemists' Association, Inc., 246 Woodward Building, Washington 5, D.C.

"Noreleco portable industrial x-ray unit, MG 160". Information. North American Philips Co., Inc., 750 S. Fulton Ave., Mount Vernon, N. Y.

"Double-Range Indicating Millivoltmeter Pyrometer." Information. Minneapolis-Honeywell Regulator Co.

"Mauser Stainless Steel Vernier Caliper." Information. George Sheer Co., Inc., 200 Lafayette St., New York 12, N. Y.

"Blaw-Knox Resin Equipment." Bulletin 2414. Blaw-Knox Co., Process Equipment Dept., Farmers Bank Building, Pittsburgh 22, Pa.

"Sodium Epoxystearate." Information. W. C. Hardesty Co., Inc. 41 East 42nd St., New York 17, N. Y.

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Appointed: Assistant to the president of Foster D. Snell Inc., 29 West 15th St., New York, N. Y., John B. Calkin, F.A.I.C., where he will also be director of market research. He has recently been associated with the University of Maine where he was director of the Department of Industrial Cooperation and secretary of the University of Maine Pulp & Paper Foundation. He is a recognized authority on the chemistry of pulp and paper and cellulose. He was also associated with fire prevention and fire safety in cooperation with the Insurance Department of the State of Maine.

Glycerine Research Award:

Nominations close November first for the Glycerine Producers' Association contest, held to recognize outstanding research in the application of glycerine or its derivatives during the current year. Official entry blanks may be obtained from the association at 295 Madison Ave., New York 17, N. Y.

Condensates**Ed. F. Degering, F.A.I.C**

It seems obvious that as a citizen, the scientist's social responsibility is at least as great as his understanding of man and nature. — A. J. Carlson.

DuPont's recent change to Type 42 Orlon acrylic staple means (1) improved affinity for acid dyes applied by the copper ion method, (2) better dyeability at lower temperatures with acid dyes, (3) better light fastness with acid dyes and dispersed dyes, (4) a wider range of acid dyes applicable at 212°F., and (5) brighter shades with acid dyes without carriers.

At least one textile processing plant is now using antibiotics to control slime-forming bacteria.

Tell-tale paints, made with chemicals derived from oil, have been made to change color when they reach certain temperatures. They can be sprayed or spread on inaccessible spots in aircraft engines or industrial heat exchangers where it is important to know the maximum temperatures but difficult to use measuring instruments.

New industrial bonding agents are said to bond all metals and alloys in common use as well as to join glass, wood and plastics to each other or to metals. The bonding agents come in rod, paste, liquid and powder form — are divided into two types for hot and cold application. Bonds between similar or dissimilar metals and between metals and non-metals are said to give tensile strengths up to 7500 psi and to be non-ferrous and electrical insulators.

A new procedure for study of combustion chamber deposit formation involves the use of motor fuel containing tetraethyl lead in which the lead is radioactive. "The exact location and distribution of the radioactive lead salts which this additive deposits within the combustion chamber can be detected later by means of x-ray film."

—DR. HAROLD P. LANDERL and
B. M. STURGIS

Communications

Credit to Our Authors

To the Editor:

From time to time *THE CHEMIST* contains articles of such general interest to all technical people that it seems unfortunate that its circulation is (mainly) restricted to chemists. It seems equally unfortunate that *Sci-En-Tech News*, publication of the Chicago Technical Council, is hard put to find locally enough articles of general interest to all technical people to keep its columns filled. To remedy both these unfortunate situations, you are requested to grant to *Sci-En-Tech News* permission to reprint some of those very excellent articles which appear in *THE CHEMIST*. Full credit will, of course, be given to *THE CHEMIST* as the source of this material.

Sci-En-Tech News has a monthly circulation of 17,000, exclusively to engineers and scientists who are members of technical societies affiliated with the Chicago Technical Council. The Chicago Chapter, AIC, is a charter member of the council, and its delegates have always been most active in its affairs. AIC members of the Council include the present president, two past presidents, the treasurer, a director and the editor of *Sci-En-Tech News*. The general chairman of the Career Con-

ference, a major project of the Council, is now and always has been an AIC member.

—ALBERT S. HENICK, F.A.I.C.
Editor, Sci-En-Tech News

Reprinted

To the Editor:

I would like permission to reprint "Chemists Are Human Beings" by S. D. Kirkpatrick as appearing in the January, 1953, *THE CHEMIST* . . .

It is very good . . . We think you are doing a real service to the profession by printing articles of such quality.

—John R. Kuebler,
Grand Recorder
Alpha Chi Sigma Fraternity

Suggests Industrial Conferences

To the Editor:

The Technical Societies Council of the Niagara Frontier, comprising representatives from some thirty technical societies with local chapter memberships of close to four-thousand engineers and chemists in the Western New York area, staged a most successful Industrial Conference and Exhibit at the Hotel Statler in Buffalo on April twenty-second.

This one-day conference drew a paid attendance of 714, with 476 at the luncheon at which Dr. A. B. Kinzel, president of Union Carbide

and Carbon Research Laboratories, Inc., was guest-speaker. A series of twelve panel programs were staged on: Plant Maintenance; Tool Engineering for Low Cost Maintenance; Industrial Instruments and Controls; Application of Plastic as an Engineering Material in Modern Product Design; Air Pollution; Material Handling Equipment Maintenance; Plant Electrical Maintenance; New Chemical Developments of the Niagara Frontier; Planning for Industrial Growth in the Niagara Frontier; Conditioned Air for Industrial Processing; Non-Metallic Materials of Construction for Chemical Process Equipment; and Lubrication's Contribution to Plant Maintenance.

The panel on New Chemical Developments included five topics: (1) "Mylar", du Pont's versatile new polyester film. "Fiberfax", the ceramic fiber with a melting point of 1800°C., produced by Carborundum Company. (3) "New Silicone Chemicals" including the silicone oxyhydride developed at Linde Air Products. (4) "Metal-Ceramics", the amazing new alloy-like materials made by fusing refractory oxides like alumina with high melting point metals like chromium. (5) "The Development of New Chemical Products", an able discussion of the many steps involved in developing, producing and marketing a new chemical product.

Promotion of this type of Industrial Conference might well be sponsored and organized by INSTITUTE Chapters as a service to their communities and for the value which local AIC members might derive from learning about new technical developments.

—L. F. HOYT, F.A.I.C.

Of Career Significance

To the Editor:

In our monthly Chronicle Guidance Service, we include reprints of articles that have career significance to high school students. In reviewing the September 1951 issue of *THE CHEMIST*, I noticed the article, "Opportunities in Chemistry." This is just the type of articles we like to reprint . . .

—Chronicle Guidance Press

Awarded: To John W. Johnson, Jr., A.A.I.C., a \$2,100 fellowship to work for the doctorate degree in chemistry at the University of Illinois this fall. He received an AIC student medal award from the Chicago AIC Chapter this June.

HILLARY ROBINETTE, JR.

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P.O. Box 607 Ardmore, Pa.

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